

PCT

INTERNATIONAL SEARCH REPORT

22 JUL 2004

(PCT Article 18 and Rules 43 and 44)

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|--|---|--|
| Applicant's or agent's file reference 70484-78 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/CA 03/ 00135 | International filing date (day/month/year) 04/02/2003 | (Earliest) Priority Date (day/month/year) 04/02/2002 |
| Applicant BIOMIRA INC. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☒ furnished subsequently to this Authority in written form.
- ☒ furnished subsequently to this Authority in computer readable form.
- ☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

- ☒ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

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☐ None of the figures.

INTF NATIONAL SEARCH REPORT

ernational Application No

PCT/03/00135

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07H21/00 A61K31/7088 A61P37/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07H A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| Y | WO 98 18810 A (UNIV IOWA RES FOUND ;KLINE JOEL N (US); KRIEG ARTHUR M (US)) 7 May 1998 (1998-05-07) the whole document | 1-101 |
| Y | R.G. SHEA ET AL: "Synthesis, hybridization properties and antiviral activity of lipid-oligodeoxynucleotide conjugates" NUCLEIC ACIDS RESEARCH, vol. 18, 1990, pages 3777-3783, XP002244700 the whole document | 1-101 |
| Y | WO 98 40100 A (DAVIS HEATHER L ;OTTAWA CIVIC LOEB RES INST (CA); QIAGEN GMBH (DE)) 17 September 1998 (1998-09-17) the whole document | 1-101 |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

24 June 2003

Date of mailing of the international search report

11/07/2003

Name and mailing address of the ISA
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Authorized officer

de Nooy, A

INTF NATIONAL SEARCH REPORT

International Application No

PCT 03/00135

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| Y | A.V. KABANOV ET AL.: "A new class of antivirals: antisense oligonucleotides combined with a hydrophobic substituent effectively inhibit influenza virus reproduction and synthesis of virus-specific proteins in MDCK cells" FEBS LETTERS, vol. 259, 1990, pages 327-330, XP002244701 the whole document | 1-101 |
| X | DAVIS P W ET AL: "DRUG LEADS FROM COMBINATORIAL PHOSPHODIESTER LIBRARIES" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 38, 27 October 1995 (1995-10-27), pages 4363-4366, XP002919421 ISSN: 0022-2623 table 2 | 84,85 |
| A | WO 01 83503 A (HYBRIDON INC) 8 November 2001 (2001-11-08) the whole document | 1 |
| A | US 5 416 203 A (LETSINGER ROBERT L) 16 May 1995 (1995-05-16) the whole document | 84 |
| A | S. MATYSIAK ET AL.: "Acetal oligonucleotide conjugates in antisense strategy" NUCLEOSIDES & NUCLEOTIDES, vol. 16, 1997, pages 855-861, XP002244702 figure 4 | 84 |
| A | PATENT ABSTRACTS OF JAPAN vol. 1998, no. 14, 31 December 1998 (1998-12-31) & JP 10 251292 A (TAIHO YAKUHHIN KOGYO KK;MATSUDA AKIRA), 22 September 1998 (1998-09-22) abstract | 70 |

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-9 (in part), 11-101 (in part)

Present claims 1-9, 11-101 relate to an extremely large number of possible compounds. In fact, the claims contain so many options that a lack of clarity within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible. Consequently, the search has been carried out for those parts of the application which do appear to be clear, namely those parts where the lipophilic group of claim 1 is as defined in claim 9 where R is as defined in claim 10.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA 03/00135

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 1-9 (in part), 11-101 (in part)
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT 03/00135

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|--|--|
| WO 9818810 | A | 07-05-1998 | US 6207646 B1 AU 5242498 A CN 1235609 A EP 0948510 A1 JP 2001503267 T KR 2000052994 A NZ 335397 A WO 9818810 A1 US 2003100527 A1 US 6429199 B1 US 2003050261 A1 US 6239116 B1 | 27-03-2001 22-05-1998 17-11-1999 13-10-1999 13-03-2001 25-08-2000 24-11-2000 07-05-1998 29-05-2003 06-08-2002 13-03-2003 29-05-2001 |
| WO 9840100 | A | 17-09-1998 | AU 753688 B2 AU 6759598 A EP 1005368 A1 JP 2002511841 T US 2002164341 A1 WO 9840100 A1 US 2003091599 A1 US 6406705 B1 | 24-10-2002 29-09-1998 07-06-2000 16-04-2002 07-11-2002 17-09-1998 15-05-2003 18-06-2002 |
| WO 0183503 | A | 08-11-2001 | AU 5736601 A EP 1278761 A2 WO 0183503 A2 US 2002132995 A1 | 12-11-2001 29-01-2003 08-11-2001 19-09-2002 |
| US 5416203 | A | 16-05-1995 | US 4958013 A AU 629655 B2 AU 5846490 A CA 2033330 A1 EP 0428707 A1 JP 4500687 T WO 9014822 A1 | 18-09-1990 08-10-1992 07-01-1991 07-12-1990 29-05-1991 06-02-1992 13-12-1990 |
| JP 10251292 | A | 22-09-1998 | NONE | |